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Bird Mortality from Fishing Lines: a Barn Owl Case Study

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Abstract: Discarded and lost materials associated with human fishing activity have been shown to have negative impacts on wildlife, particularly through consumption of hooks and entanglement in fishing line. For birds, the affected species are typically those associated with shorelines or the water itself. We recovered a dead Barn Owl that was found suspended by fishing line in a tree at Chippewa Lake, Medina County. The bird was tangled within the fishing line, and—significantly—there was a fish hook attached that was embedded deep in the bird's wrist. Based on this pattern of entanglement, we suggest that the bird was initially caught on the discarded hook, and then became tangled in the fishing line as it struggled, resulting in death by asphyxiation. Barn Owls are a threatened species in Ohio, and this particular individual likely hatched at a newly established nesting site near Chippewa Lake. Fishing materials remain a threat to wildlife in many ways and efforts should be made to remove this material from the environment.

Keywords: monofilament fishing line, mortality, *Tyto alba*

Introduction

Bird mortalities have been documented from many fishing-related activities and equipment, with particular focus on the impacts on seabirds from long-line fisheries and gillnets (Manville 2005, Žydelis et al. 2013). Discarded and lost fishing equipment from non-commercial fishing has also been documented, but there are fewer published incidents and no reviews of this phenomenon to understand the scale of this potential threat to birds. Most previous reports have concerned simple entanglement in fishing lines (e.g., Heath et al. 2017, Knight et al. 1980, Parker and Blomme 2007). We report here on an unusual case of a Barn Owl that died from apparent asphyxiation after being snagged on a fish hook and entangled in monofilament fishing line.

Specimen Data

While performing routine boat patrol on 3 September 2016 (as a Medina County Park District [MCPD] ranger), BW was informed by a park visitor that a large bird was hanging from a tree. BW was able to find the bird suspended, dead, in a willow tree (*Salix* sp.). The tree was along the shoreline of Chippewa Lake in Medina County, near the Westfield Landing boat ramp (41.0614°N, 81.9096°W). This location is a popular fishing access site. The bird was suspended within a tangle of fishing line below a dead branch in the upper half of this tree, approximately 5–6 meters above the water. He retrieved the bird by cutting the fishing line, and discovered that it was a Barn Owl (*Tyto alba*). The carcass was photographed (Figure 1) and then frozen and transferred to the Cleveland Museum of Natural History's Department of Ornithology. The specimen was prepared by CLB as a round skin with a separate spread wing and a frozen tissue sample, with preparator number CLB 1145 and catalogued as CMNH 74,788. The bird's organs had degraded and the reproductive organs were no longer available, suggesting that the bird had been dead for more than 24 hours. The wing chord measured 345 mm, which ties the upper range for males but is well within the range of females, as reported by Pyle (1997). The face and upper breast were mostly buffy in color, and there were no molt limits in the remiges, suggesting that this was a year-old female (pers. comm. A. Roulin; Pyle 1997). Other measurements of the carcass included thawed weight 490.0 grams, wing span 1070 mm, very light fat, empty stomach, and light molt throughout the body and heavy molt on the head and rump.

While preparing the specimen, AWJ and CLB examined the carcass to try to assess the damage from the fishing line. A bare hook, measuring 60 mm in length, was stuck in the bird's right wrist, on the ventral side. The hook was embedded beyond the barb, and required pliers to free it from the wrist bones. There was 4190 mm of fishing line attached to the 489 mm steel leader and the hook, and the line was tightly wrapped around the bird. The line encircled the right wrist area once, the base of the right wing twice, the base of the left wing once, the upper right leg once, the base of the tail once, and the neck once. The line was

very tight against the skin and around the bases of some feathers (particularly the right axillaries), suggesting that the bird had been struggling against the line to free itself. The inside of the bird's skin showed evidence of distress in the form of ruptured blood vessels around the base of the wings and neck. Based on the location and depth in the wrist of the hook, this bird was apparently snagged when it flew by this hook and line, brushing against the line and getting the hook caught in its wrist. From the tightness of the fishing line around this Barn Owl, the bird likely suffocated as it became tangled with its own weight and flapping tightened the line around the neck and rest of the body.

Discussion

The Barn Owl is considered a threatened species in Ohio, and was confirmed as a breeder in just 2.1% of the blocks surveyed in *The Second Atlas of Breeding Birds in Ohio* (Rodewald et al. 2016). Most active nests were in Wayne and Holmes counties, and no reports came from Medina County during this period (2006–2011). Many nest sites are in nest boxes placed by the Ohio Division of Natural Resources (ODNR) and their partners. In Medina County, MCPD and others were approached by ODNR in 2014 with a request to place boxes in suitable sites in the county. MCPD placed four nest boxes, and the first MCPD nest was recorded in 2015 in a nest box in a barn on MCPD property near Chippewa Lake. This site is approximately 1 km from the site where this adult bird was found dead. The nest was not occupied in summer 2016. Considering the scarcity of Barn Owls in the region and the age of this salvaged bird, we consider it likely that this individual was fledged from the 2015 nest.

Lost and discarded fishing line is a known source of mortality, with several published case studies. Heath et al. (2017) reported five cases of injury or mortality from fishing line in a population of American Oystercatcher (*Himantopus palliatus*) being studied along the Texas coast. Four birds were entangled in line around their legs, and a fifth bird was euthanized after complications of consuming at least five types of fishing line. This represented 2–4% of the focal study population. Other researchers in the American Oystercatcher Working Group reported an additional eight records of fishing line entanglement in that species. Fishing line entanglement was also reported for a Barn Owl (*Tyto alba*) and a Western Screech-Owl (*Megascops kennicottii*) along waterways in Washington state (Knight et al. 1980). A Mourning Dove was found suspended and tangled within fishing line that was woven into its own nest (Parker and Blomme 2007). Lost or discarded line with a hook was also involved in at least two incidents. An Eastern Phoebe was found dead over the Kinnickinic River in Wisconsin, where it had attempted to catch a fly-fishing lure that was attached to a limb over the river; the bird was found dead, with the lure hooked in the bird's tongue (Eaton and Hernandez 2005). Parrish and Maurer (1991) reported a Merlin that survived after being found with a hook (attached to line and a lead weight) embedded in its wing.

Figure 1. A Barn Owl recovered 5 to 6 meters above the water on Chippewa Lake in Medina Co. The bird was found dead, wrapped in fishing line, with a fishing hook deeply embedded in its right wrist. Photograph by Bob Weidig, 3 September 2016.

Both the Barn Owl in the present study and the Merlin in Parrish and Maurer (1991) succumbed after brushing against a leftover hook that then became embedded in the bird. These are the only published examples of this cause of mortality that we are aware of. We report on this incident to highlight that discarded fishing line poses a serious risk to birds beyond simple entanglement. Many areas, including Medina County Park District, provide disposal containers for unwanted fishing line. We suggest that there is still an extra level of care needed to address lost line within nearby vegetation. Death from contact with fishing line is not a major cause of death from direct anthropogenic sources, and certainly would not cause as many deaths as sources like domestic cats, collisions with manmade structures, and pesticides (reviewed in Loss et al. 2015). However,

this also represents an easily preventable cause of mortality that relies upon the fishing community to police their own trash, concerned citizens to aid clean-up efforts, and park districts and other communities to provide appropriate trash receptacles. In the present case, as well as the Merlin reported by Parrish and Maurer (1991), the fishing line was left too high in a tree for easy retrieval. We encourage anyone working to clean up waterways to be attentive to fishing line caught up in trees as another potential cause of mortality for wildlife.

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